The Monitor

The Newsletter of the ETV Advanced Monitoring Systems (AMS) Center

Volume 5, Number 2 February 2002

Next verification test

Diverse Group Agrees Ammonia CEMs Are Needed

Representatives from more than 10 companies with ammonia monitoring instruments learned about the need for and the proposed verification test of ammonia "slip" technologies at a meeting hosted by U.S. EPA Region 1 in Boston, MA, January 30. Ammonia "slip" refers to the amount of unreacted ammonia that may bypass a NO_x reduction system and escape into the atmosphere (see box).

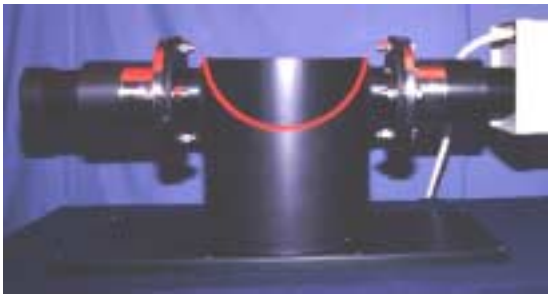
In addition to technology vendors, those attending included staff from state and federal regulatory agencies, the New England Governors' Council, Northeast States for Coordinated Air Use Management (NESCAUM), and Battelle, a partner with U.S. EPA's Environmental Technology Verification Program (ETV) in the Advanced Monitoring Systems Center (AMS).

The purposes of the meeting were to exchange information about the types of ammonia monitoring devices and to discuss the region's ammonia monitoring needs, the possible availability of Small Business Innovation Research (SBIR) grants for manufacturers of ammonia monitoring technologies, and current plans for the AMS Center's verification of commercially available ammonia monitoring technologies.

U.S. EPA awards SBIR grants to small, high technology firms to encourage research and development of cutting-edge technologies. The agency's Office of Research and Development (ORD) is currently soliciting SBIR grant requests from small businesses, including companies that manufacture ammonia monitoring technologies.

Representing the AMS Center at the meeting were Ken Cowen of Battelle, coordinator of the AMS Center's verification test of ammonia continuous emissions monitoring equipment (CEMs), and Ernest Bouffard of the Connecticut Department of Environmental

(See CEMs on page 2)



Ammonia CEM examples: The interior of the OMA-300 from Applied Analytics (left) and the ASI Lasergas Analyzer from Analytical Specialties.

Ammonia "Slip": What & Where Is It?

Ammonia is a colorless gas that is reactive and corrosive and has a pungent odor noticeable above 50 parts per million.

This gas can be irritating to the eyes, nose, and throat in small amounts and poisonous if inhaled. It can also be explosive when mixed with air in certain proportions.

Ammonia (NH_3) is emitted into the atmosphere by many types of industries, such as chemical plants, fertilizer production facilities, and plants using ammonia as a refrigerant.

Ammonia emissions can also result when using ammonia in post-combustion control devices to decrease NO_x emissions, as in coal- and gas-fired power plants. The NH_3 emitted without reacting to reduce NO_x is called "slip."

Various technologies and methods are available to control ammonia slip, including wet scrubbers, ammonia slip recycling, capture devices such as hoods, and careful use of NO_x control methods.

Monitoring devices are important in maintaining ammonia slip at acceptable levels while also assuring high NO_x removal efficiencies.

CEMs *(from page 1)*

Protection, who is a member of the AMS Center's air stakeholder committee.

Air pollution agency officials throughout New England agree there is a clear need for cost-effective monitoring systems to measure ammonia emissions on a continuous basis, and thus they are searching for better technologies. Since 1996, environmental agencies in northeastern states have included ammonia emission limits when issuing air pollution permits.

Several companies that attended this meeting are expected to participate in the verification. The AMS Center plans to conduct phase 1 of the test at a coal-fired power plant and phase 2 at a natural gas-fired plant. For further information about the test, contact Ken Cowen via phone (614-424-5547) or e-mail (cowenk@battelle.org).

Currently, the AMS Center is in discussions with American Electric Power (AEP) Company of Columbus, Ohio, about partnering opportunities for this test. AEP is considering hosting the first phase of testing at one of its coal-fired power plants on the Ohio River.

The AMS Center is also seeking additional partners or collaborators for the ammonia CEMs verification test. The partners could be agencies, organizations, or companies that could contribute funds, provide a host facility for the gas-fired phase of testing, help monitor the test, collect data, or assist in reviewing test reports.

Past partners and collaborators have been valuable contributors to verification tests and received benefits in return. For example, the U.S. Department of Energy's National Energy Technology Laboratory (NETL) in Pittsburgh, PA, and the California Air Resources Board (CARB) partnered with Battelle on a verification test of 13 ambient fine particulate monitors. NETL benefited from assisting with the test of each instrument and observing first hand the verification process. Their contributions to the test resulted in positive local press coverage. NETL also took the opportunity to identify instruments for future purchase and use at the laboratory. CARB arranged to keep one of the instruments at its test site for further evaluation.

Mercury CEMs. Phase 2 of this verification test is expected to begin in April at a full-scale hazardous waste incinerator. Five vendors have indicated an interest in participating in the test, which is to be conducted in collaboration with the U.S. Department of Energy at its TSCA incinerator at Oak Ridge, TN. A test plan has been drafted and a notice of the proposed test has been sent to CEM vendors. Contact: Tom Kelly, 614-424-3495 or kellyt@battelle.org.

Multi-metals CEMs. A verification test of an X-ray-based continuous emission monitor for metals (XCEM), was conducted last May in collaboration with the U.S. Army's Construction Engineering Research Laboratory at its demilitarization incinerator at the Tooele (UT) Army Depot.

This test evaluated the instrument's performance in determining multi-metal concentrations in combustion source emissions. The draft verification report and statement are being reviewed by EPA and members of the AMS Center's air stakeholder committee. Contact Tom Kelly (see above).

Multi-parameter water probes. Five vendors are expected to participate in this test, which is to start in late April in the Charleston, SC, area. The AMS Center is collaborating on the test with the National Oceanic and Atmospheric Administration's (NOAA) Center for Coastal Environmental Health and Biomolecular Research (CCEHBR) in Charleston, which offers freshwater, salt water, and a controlled site for testing. Contact: Jeff Myers, 614-424-7705 or myersjd@battelle.org.

Portable arsenic water analyzers. The draft verification reports and statements are to be sent to the four participating vendors and EPA representatives for review by the end of February. Contact Adam Abbgy, 614-424-5484 or abbgya@battelle.org.

Portable multi-gas emission analyzers. Four vendors have expressed interest in submitting technologies for this test, which will measure the instruments' capabilities to detect NO/NO_2, SO_2, CO, and oxygen (O_2) in combustion emissions. Contact: Tom Kelly (see above).

Upcoming Events

March

17-22	PITTCON 2002 Conference, New Orleans, LA

April

25-26	AMS Center's air stakeholder committee meeting, Pine Mountain, GA

May

7-9	14th Annual Enviro-Expo Conference, Boston, MA
20-23	Water Quality Monitoring 2002 Conference: Building a Framework for the Future, Madison, WI
21	AMS Center's water stakeholder committee meeting, Madison, WI

June

16-20	Annual American Water Works Association Conference and Exposition, New Orleans, LA
23-27	95th Annual Conference and Exposition of Air and Waste Management Association, Baltimore, MD